

REMARKS

The final Office Action mailed February 1, 2010 has been reviewed and carefully considered. Claims 76-79 and 81-83 are pending in this application. Claims 78, 79, 81 and 82 have been amended. Claims 1-75, 80 and 84 have been cancelled without prejudice. No new matter has been added. Reconsideration of the above-identified application is respectfully requested in view of the following remarks.

Allowable Subject Matter

In the above-identified Office Action, the Examiner has indicated that claims 76-79, 81, and 83 would be allowable if rewritten or amended to overcome the rejections set forth therein. Applicants appreciate the Examiner's recognition that claims 76-79, 81 and 83 contain allowable subject matter. In view of the remarks and amendments made in this response, it is believed that the rejections set forth with respect to claims 76-79, 81, 82 and 83 have been overcome and that these claims are in allowable form.

Objections to the Specification

The Examiner has objected to the specification since page 14 was not filed with the originally filed application. Omitted page 14 contained paragraphs [54] – [64], which included descriptions for Figures 5-15. Amended paragraphs [54] – [64] provided above now contain a description for Figures 5-15. No new matter has been added by these amendments. The language set forth in the newly amended paragraphs [54] – [64] is supported by the originally filed application as indicated below.

Support for amended paragraph [54] can be found at least at Figure 5, as well as in paragraph [133] of the originally filed application.

Support for amended paragraph [55] can be found at least at Figure 6, as well as in paragraph [102] of the originally filed application.

Support for amended paragraph [56] can be found at least at Figure 7, as well as in paragraph [134] of the originally filed application.

Support for amended paragraph [57] can be found at least at Figure 8, as well as in paragraph [138] of the originally filed application.

Support for amended paragraph [58] can be found at least at Figure 9, as well as in paragraph [140] of the originally filed application.

Support for amended paragraph [59] can be found at least at Figure 10, as well as in paragraph [141] of the originally filed application.

Support for amended paragraph [60] can be found at least at Figure 11, as well as in paragraph [143] of the originally filed application.

Support for amended paragraph [61] can be found at least at Figure 12, as well as in paragraph [144] of the originally filed application.

Support for amended paragraph [62] can be found at least at Figure 13, as well as in paragraph [145] of the originally filed application.

Support for amended paragraph [63] can be found at least at Figure 14, as well as in paragraph [146] of the originally filed application.

Support for amended paragraph [64] can be found at least at Figure 15, as well as in paragraph [79] of the originally filed application.

Accordingly, Applicants request that paragraphs [54] – [64] of the originally filed application be replaced with amended paragraphs [54] – [64] as shown above.

Objections to the Claims

Claim 81 stands objected to for containing language which rendered the meaning of this claim unclear. The Examiner's objection is noted and claim 81 has been amended. More specifically, the phrase "are marked" has been removed from this claim. It is believed that this amendment is sufficient to overcome the present objection. Therefore, applicants respectfully request that this objection be withdrawn.

Rejection of Claims 78 and 79 under 35 U.S.C. § 112

Claims 78 and 79 stand rejected under 35 U.S.C. § 112, first paragraph for allegedly being based on a disclosure which is not enabling. More specifically, the Examiner contends that the meaning of "!" is critical or essential to the practice of the invention, but is not enabled by the disclosure. Applicants respectfully assert that the meaning of "!" is well known in the area of computer science as referring to a logical negation or NOT operator. However, since the disclosure does not explicitly refer to this notation, claims 78 and 79 have been amended such that the "!" is replaced with an alternative notation (i.e., "¬") used in the specification to represent a logical negation or NOT operator. This amendment is supported at least at paragraph [0163] of the originally filed application. Therefore, applicants respectfully request withdrawal of this rejection.

Claims 78 and 79 are also rejected under 35 U.S.C. § 112, first paragraph because the Examiner asserts that the recitation of "!(not(y))" is not enabled by the specification. In maintaining this rejection, the Examiner recognizes that the applicant's disclosure is enabling for "not(y)", but

asserts that the specification is not enabling for the double negative imposed in the expression “!(not(y))”. The Examiner’s remarks have been noted and the expression containing the double negative has been removed from claims 78 and 79. Hence, the expression “(m+y)(m+!(not(y)))” has been replaced with “(m+y)(m+y)”. Support for this amendment can also be found in paragraph [0163] of the originally filed application. Therefore, applicants respectfully request withdrawal of this rejection.

Rejection of Claim 82 under 35 U.S.C. § 112

Claim 82 stands rejected under 35 U.S.C. § 112, first paragraph for allegedly being based on a disclosure which not enabling. More specifically, the Examiner contends that the meaning of “reporting a counterexample is reported if it is real and terminating the verification” as recited in this claim is critical or essential to the practice of the invention, but is not enabled by the disclosure. Step (a) of claim 82 has been amended to recite:

(a) if the property is violated at depth k using a satisfiability-based
bounded model checking, ~~reporting a counterexample is reported if it~~
~~is real and~~ terminating the verification

It is believed that the remaining portion of step (a) is supported by the originally filed specification. More specifically, support for the remaining portions of step (a) can be found at least at paragraphs [0132] as well as in Figure 5. Therefore, withdrawal of this rejection is respectfully requested.

Claim 82 also stands rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the written description requirement. In particular, the Examiner has stated that the recitation of “until either there is no change in the size of the derived abstract model or” is not described in the specification. Applicants respectfully disagree with the Examiner in view of paragraphs [0124] and [0138], as well as FIG. 8, of the originally filed application. The last few sentences of [0138] discuss the outer abstraction loop where model A_n is used to derive a new abstract model A_{n+1} , and further explain:

If we wish to continue the abstraction flow, we increment the iteration index n (box 823), and loop back to perform the next iteration (box 803). **If we don't wish to continue**, e.g. if resources for this iteration have been exhausted, **or if model A.sub.n+1 is unchanged from model A.sub.n**, we attempt to verify the abstract model A.sub.n+1 (box 830).

As can be seen in bolded portions of the above-cited passage, the present specification teaches that the outer abstraction loop may terminate if the size of abstract model A_{n+1} remains unchanged from abstract model A_n . Moreover, the description at paragraph [0124] reiterates the same. Therefore, applicants respectfully assert that the element “until either there is no change in the size of the derived abstract model or” is supported by applicants’ original disclosure. Accordingly, withdrawal of this rejection is respectfully requested.

Rejection of Claims 76-79, 81 and 83 under 35 U.S.C. § 112

Claims 76-79, 81 and 83 stand rejected under 35 U.S.C. § 112, second paragraph for allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention.

With respect to claim 81, the Examiner contends that the recitation of “the proof of unsatisfiability” and “the satisfiability solver” lack proper antecedent basis. The Examiner’s rejection has been noted and the claims have been amended accordingly. It is believed that these amendments will be sufficient to overcome the present rejection.

With respect to claims 78 and 79, the Examiner contends that the recitation of “the satisfiability formula” in these claims lacks proper antecedent basis. The Examiner’s rejection is noted and the phrase “the satisfiability formula” has been replaced with “the satisfiability-based check” in both of these claims. It is believed that this amendment will be sufficient to overcome the Examiner’s rejection.

Applicants respectfully assert that the above amendments to both the claims and the specification will not require any additional work on the part of the Examiner. Accordingly, applicants request entry of all amendments discussed above.

In view of the foregoing, Applicants respectfully request that the rejection of claims 76-79 and 81-83 set forth in the final Office Action of February 1, 2010 be withdrawn, that pending claims 76-79 and 81-83 be allowed, and that the case proceed to issuance of Letters Patent in due course.

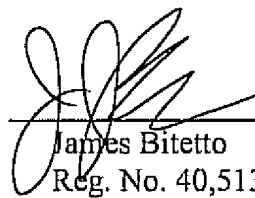
It is believed that no additional fees or charges are currently due. However, in the event that any additional fees or charges are required at this time in connection with the application, they may be charged to Account No. 140627.

Respectfully submitted,

Dated: _____

3/30/10

By: _____



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